**Definition**

Let $|A| = n$, and define "$n$ choose $k$" as the number of subsets of $A$ with $k$ elements. We sometimes denote this by

$$\text{"}n \text{ choose } k\text{"} = \binom{n}{k}.$$

**Fun fact (that we won't prove for now)**

$$\binom{n}{k} = \frac{n!}{k!(n-k)!}.$$